

IN THE CLAIMS:

Please amend Claims 1, 2, 4, 9, 10, 12 and 13 as follows. Note that all the claims currently pending in this application, including those not presently amended, have been reproduced below for the Examiner's convenience.

1. (Currently Amended) A magnetic guiding apparatus for guiding a moving member along a length of a sliding member by attracting a target disposed along the length of the sliding member by electromagnets provided on the moving member, said apparatus comprising:

magnetic-flux detection means movable along the target length of the sliding member, for detecting a magnetic flux along the length of the target;

position measuring means for measuring a position of said magnetic-flux detection means along the length of the sliding member; and
control means responsive to position information from said position measuring means and magnetic-flux information from said magnetic-flux detection means for detecting a position of the magnetic flux at the target, and for performing demagnetization at the detected position of the magnetic flux

detection means for detecting a position of the magnetic flux peak along the length of the target, based on output of said magnetic-flux detection means and said position measuring means; and

demagnetization means for performing demagnetization at the detected position of the magnetic flux peak.

2. (Currently Amended) A magnetic guiding apparatus according to Claim 1, further comprising storing means, wherein a magnetized position at the target is identified by moving said magnetic-flux detection means over an entirety of a movable region on the target while detecting the magnetic flux by said magnetic-flux detection means and storing the position information and the magnetic-flux information of the target in said storing means for storing the magnetic flux in the target corresponding to the position measured by said position measuring means.

3. (Original) A magnetic guiding apparatus according to claim 1, wherein said magnetic-flux detection means is mounted on the moving member.

4. (Currently Amended) A magnetic guiding apparatus according to Claim [[1]] 3, wherein demagnetization is performed by moving the electromagnets to the position of the magnetic flux using the moving member and providing the electromagnets with a current signal by said control means demagnetization means.

5. (Original) A magnetic guiding apparatus according to claim 1, wherein at least one of the electromagnets is used as said magnetic-flux detection means.

6. (Original) A stage apparatus comprising: a magnetic guiding apparatus according to claim 1.

7. (Original) An exposure apparatus for positioning at least one of a substrate and an original by a stage apparatus according to claim 6.

8. (Original) A device manufacturing method comprising: a step of manufacturing devices by an exposure apparatus according to claim 7.

9. (Currently Amended) A stage apparatus comprising:

 a target having a length extending along a direction;

 a moving member supported guided by said target and movable along the length of said target;

 electromagnets provided [[at]] on said moving member and producing a force between said target and said electromagnets;

 magnetic flux detection means provided on the moving member for detecting a magnetic flux along the length of said target;

 position measuring means for measuring a position of said moving member along the length of the target; and

control means detection means for detecting a position of the magnetic flux at said peak along the length of the target, based on position information from said position measuring means and magnetic-flux information from said magnetic-flux detection means output of said magnetic-flux detection means and said position measuring means.

10. (Currently Amended) A stage apparatus according to Claim 9, wherein said control means reduces said magnetic flux further comprising demagnetization means for reducing the magnetic flux at the detected position of the magnetic flux peak.

11. (Original) A stage apparatus according to claim 10, further comprising a servo positioning system for positioning said moving member, wherein said servo positioning system is off during a reduction in the magnetic flux.

12. (Currently Amended) A magnetic guiding method for guiding a moving member demagnetization method for performing demagnetization of a magnetic guide apparatus, which has a moving member along a length of a target, comprising the steps of:

attracting a target by electromagnets on the moving member;

detecting a magnetic flux in along the length of the target by a magnetic flux detecting means movable along the target;

measuring position of the magnetic flux detecting means along the length of the target;

detecting a position of magnetic flux in peak along the length of the target from responsive to the measured positions and detected magnetic flux based on measured position and detected magnetic flux; and

performing demagnetization at the detected position of the magnetic flux peak.

13. (Currently Amended) A magnetic guiding apparatus for guiding a moving member along a length of a beam by attracting a target disposed along the length of the beam by electromagnets provided on the moving member, said apparatus comprising:

a magnetic- flux detector movable along the target length of the beam, for detecting configured to detect a magnetic flux movable along the length of the target;

a position measuring unit for measuring configured to measure a position of said magnetic-flux detector along the length of the target; and

a controller responsive to position information from said position measuring unit and magnetic-flux information from said magnetic-flux detector for detecting a position of the magnetic flux at the target, and for performing demagnetization at the detected position of the magnetic flux

detection means for detecting a position of a magnetic flux peak along the length of the target based on output of said magnetic-flux detection means and said position measuring means; and

demagnetization means for performing demagnetization at the detected position of the magnetic flux peak.